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**A NEW SPECIES OF *RHADINAEA* (COLUBRIDAE) FROM
 THE CARIBBEAN VERSANT OF GUATEMALA**

ERIC N. SMITH AND JONATHAN A. CAMPBELL

*Department of Biology, The University of Texas at Arlington,
 Arlington, Texas 76019, USA*

ABSTRACT A new species of *Rhadinaea* is described from the Caribbean versant of eastern Guatemala. This small species is a member of the *godmani* group. We report the presence of *R. montecristi* in Guatemala for the first time.

Key words: Reptilia; Serpentes; Colubridae; *Rhadinaea* new species; Department of Izabal; Guatemala.

RESUMEN Una nueva especie de colúbrido del género *Rhadinaea*, un pequeño miembro del grupo *godmani*, se describe de la vertiente Caribe de Guatemala. Además se reporta por primera vez a *Rhadinaea montecristi* en Guatemala.

Palabras claves: Reptilia; Serpentes; Colubridae; *Rhadinaea* nueva especie; Departamento de Izabal; Guatemala.

The herpetofauna of the highlands of northeastern Guatemala has been relatively well documented (Stuart, 1948; Campbell and Vannini, 1989). However, some of the mountain ranges in the departments of Izabal and Zacapa in eastern Guatemala have received scant attention from biologists. These ranges include, the Sierra de Santa Cruz, the Montañas del Mico, and the Sierra del Merendón (the latter includes the Montañas de La Unión, the Sierra del Espíritu Santo, and the Sierra de Caral). Several anuran species have been described recently from these mountains—viz., *Ptychohyla panchoi* (Duellman and Campbell, 1982), *P. sauctaegrucis* (Campbell and Smith, 1992), and several species of *Eleutherodactylus* (Campbell, in press; Campbell et al., in press).

Previously, four species of the snake genus *Rhadinaea* were known to occur in eastern Guatemala: *R. decorata*, *R. godmani*, *R. hempsteadae*, and *R. kinkelini*, (Campbell and Vannini, 1989). Our field studies in eastern Guatemala have revealed the existence of an unnamed species of *Rhadinaea*. Based on the presence of enlarged posterior maxillary teeth, 17 dorsal scale rows, anal ridges in males, a pale bar between eye and angle of jaw, an inverted U-shaped marking on the rostral, and the absence of a subpreocular, we consider this species to be a diminutive member of the *godmani* group (sensu Myers, 1974:119), and it seems to be closely related to *R. hannsteini*. However, this new species differs from other species in the *godmani* group in having the ultimate maxillary tooth slightly offset laterad. Herein we describe this newly discovered species and report for the first time the presence of *Rhadinaea montecristi* in Guatemala.

MATERIALS AND METHODS

Our comparisons of species of *Rhadinaea* were based on material at The University of Kansas (KU) and the University of Texas at Arlington (UTA), the excellent monograph by Myers (1974), and the accounts by Campbell (1982) and McCranie and Wilson (1991a,b).

The undescribed species may be known as

Rhadinaea anachoreta new species

Figs. 1–2

Holotype.—The University of Texas at Arlington (UTA) R-33051 (original number E. N. Smith 3360), an adult male, from the north slope of Cerro del Aguacate, Aldea Negro Norte, Sierra de Caral, Municipio de Morales, Departamento de Izabal, Guatemala, 1180 m. obtained by local inhabitant on 26 June 1991. The type-locality is located at about 15°20'49" N, 88°40'35" W, which is only about 0.2 km from the Honduran border; the Sierra de Caral is the local name for the northern portion of the Sierra del Merendón in Guatemala.

Paratypes (2).—KU 221258, an adult female, from Finca Semuc (near the main farmhouse), Municipio de El Estor, Sierra de Santa Cruz, Departamento de Izabal, Guatemala, about 500 m. collected on 30 December 1990; and UTA R-33052, an adult male, also from Finca Semuc, between 425–750 m, collected between 15 January and 20 June 1991.

Diagnosis.—A small species of *Rhadinaea* in the *godmani* group, characterized by subpreocular absent, tail 28–31% of total length, anal ridges in males, eight supralabials, and eight infralabials. *Rhadinaea anachoreta* may be distinguished from some members of the *godmani* group, *R. godmani*, *R. hempsteadae*, *R. montecristi*, and *R. serperaster*, by its low

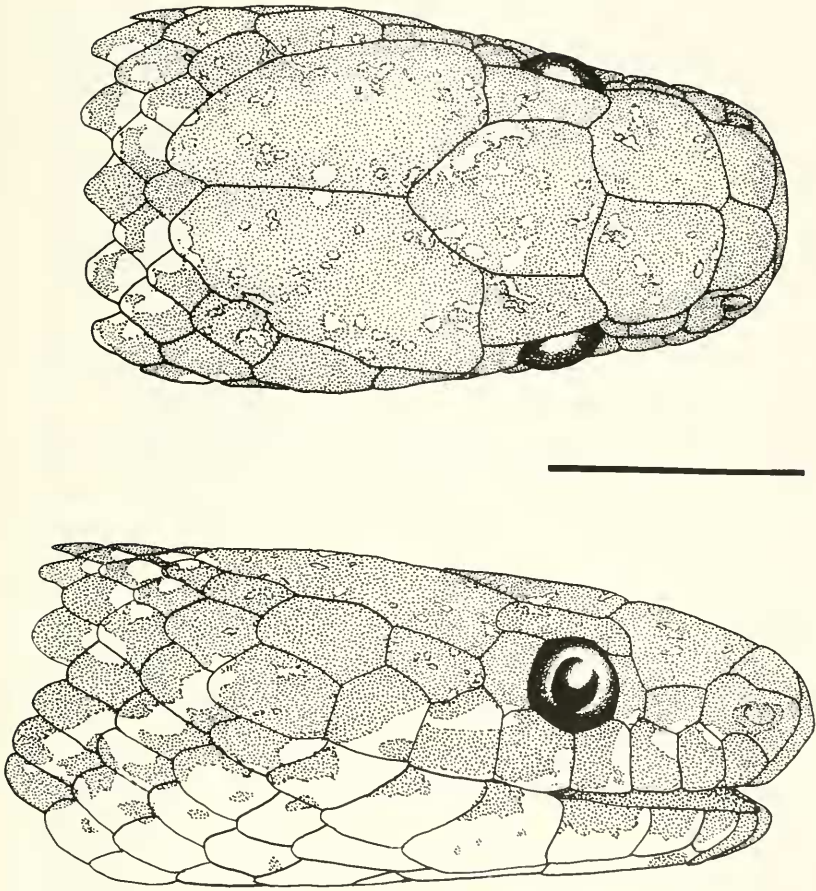


Fig. 1. Dorsal and lateral aspects of the head of the holotype of *Rhadinaea anachoreta*, UTA R-33051. Scale = 3 mm.

number of dorsals (17 compared to 21 in *R. godmani*, 19 in the other three species). *Rhadinaea anachoreta* differs from those members of the *godmani* group having 17 dorsal scale rows, except *hannsteini*, by having a well-defined pattern of dark lines along the body, only one postocular, and no heavy dark lateral and ventrolateral lines. *Rhadinaea anachoreta* may be distinguished from *R. hannsteini* by having 1 + 1 temporals (versus 1 + 2), a V-shaped nuchal collar directed towards the front that is broken middorsally and laterally (versus a transverse collar that is broken only middorsally), and a broad dark vertebral line that occupies the entire vertebral scale plus the adjacent one third of the paravertebrals (compared to only the median third of the vertebral scale in *R. hannsteini*). *Rhadinaea*

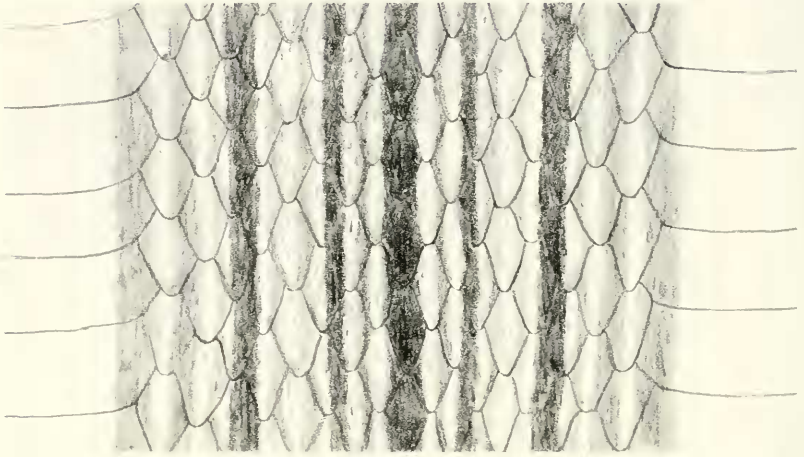


Fig. 2. Midbody pattern of *Rhadinaea anachoreta* (holotype, UTA R-33051).

anachoreta differs from *R. kinkelini* and *R. pinicola* by possessing 1 + 1 temporals instead of 1 + 2, and one postocular instead of two. *Rhadinaea pinicola* further differs from *R. anachoreta* by not having dark lateral stripes.

Description of Holotype.—An adult male, 251 mm total length; tail length 72 mm (28.6% of total); head length 7.66 mm from front face of rostral to posterior end of mandible; head width 4.08 mm at broadest point (at level of angle of mouth); head distinct from neck; snout 2.2 mm from front of rostral to anterior edge of eye; eye about half the length of the snout; pupil round; rostral twice as wide as high; internasals 1.5 times wider than long, contacting only the nasals laterally; length of internasal suture about half diameter of the eye; prefrontals 0.7 times wider than long, in contact laterally with preocular, supraocular, nasal, and loreal; prefrontal suture 1.3 times diameter of eye; frontal 1.3 times longer than wide; supraoculars 1.6 times longer than wide; parietals twice as long as wide; parietal suture 0.6 times length of parietals; 1 + 1 temporals; first temporal 1.3 times longer than wide; second temporal 1.6 times longer than wide; single preocular, three times wider than long; single postocular, 1.2 times wider than long; loreal 1.3 times longer than wide; 8/8 supralabials, eighth largest, first in contact with nasal, second in contact with nasal and loreal, third in contact with loreal and preocular, fourth and fifth in contact with orbit, fifth and sixth in contact with postocular, sixth and seventh in contact with primary temporal, seventh and eighth in contact with secondary temporal; mental twice as broad as long; anterior chin shields 2.6 times

longer than wide; posterior chin shields 1.8 times longer than wide; 8/8 infralabials, fifth largest; two gulars and two preventrals between posterior chin shields and first ventral; dorsals in 17 rows, smooth, unreduced; apical pits absent; ventrals 146; anal divided; subcaudals 74, paired; tail complete; anal ridges present.

Maxilla bearing 14 teeth increasing in size from front to rear, with last two noticeably enlarged and set off from others by narrow diastema, posterior tooth slightly offset laterad.

Hemipenes inverted, retracted organ extending to Subcaudal 6; no attempt was made to dissect this tiny organ.

Color in preservative: Dorsal ground color brown; dorsum of head almost unicolor with few scattered pale brown spots; supralabials bordered anteriorly with cream; cream postocular streak extending from lower posterior corner of orbit to just below angle of mouth; cream streak extending from posterior border of the eighth supralabial to ventrolateral nuchal region; pale cream nuchal markings extending in a V-shape from behind parietals downward four or five scales; two ill-defined pale brown ventrolateral dark stripes, one beginning at the ventrals barely encroaching on first dorsal row, another occupying half of first and second dorsals scale rows; lateral stripe occupying half of Dorsals 3 and 4; two dorsolateral stripes, one occupying half of Dorsal 6 and one third of Dorsal 7, another occupying one third to one half of Dorsals 7 and 8; vertebral stripe occupying vertebral row and adjacent third of paravertebral scale rows; center of most scales pale; dorsal ground color continuing onto tail, grading gradually into darker brown; mental and anterior infralabials mostly dark brown, posterior infralabials mostly yellow-cream with dark markings posteriorly; venter cream, becoming more yellow anteriorly.

Variation.—Measurements and proportions for the adult female paratype are snout-vent length 182 mm (tail incomplete); head length 8.5 mm; head width 5.32 mm; snout 2.4 mm; rostral 2.1 times wider than high; internasals 1.3 times wider than long; length of internasal suture 0.5 times diameter of eye; prefrontals 0.9 times wider than long; prefrontal suture 1.2 times diameter of eye; frontal 1.2 times longer than wide; supraoculars 1.8 times longer than wide; parietals 1.8 times longer than wide; parietal suture 0.7 times length of parietals; primary temporal 1.6 times longer than wide; secondary temporal 1.2 times longer than wide; preocular 3 times wider than long; postocular 1.5 times wider than long; loreal 1.4 times longer than wide; 8/8 supralabials; mental 2.6 times broader than long; anterior chin shields 2.3 times longer than wide; posterior chin shields 1.3 times longer than wide; three gulars and one preventral between the posterior chin shields and first ventral; dorsal scales smooth, in 17 unreduced rows; ventrals 147; anal ridges absent; 13 maxillary teeth with last two noticeably enlarged and separated from other teeth by narrow diastema, posterior

tooth slightly offset laterad.

The male paratype is badly mutilated, thus limiting the amount of morphological information that may be obtained. This specimen agrees with the female holotype and paratype in most aspects of lepidosis, and has 139 ventrals and 80 subcaudals. It is approximately 238 mm in total length with a tail length of 74 mm (31% of total); anal ridges are present; 13 maxillary teeth with condition of last two similar to type and female paratype; hemipenes inverted, tail desiccated.

The color in preservative of the paratypes does not vary significantly from that of the holotype.

Etymology.—The specific name is an adjective, derived from the Greek *anachoretēs*, meaning a hermit or recluse, in allusion to the disjunct, isolated distribution and secretive habits of this species.

Distribution and Ecology.—This species is known from only two localities in eastern Guatemala, one in the Sierra de Santa Cruz and the other in the Sierra de Caral (Fig. 3). Two major valleys, the Motagua and Polochic (including Lago de Izabal) isolate these mountain ranges from each other. However, *Rhadinaea anachoreta* may occur in other humid forests of the mountains of the Caribbean versant of Guatemala. The occurrence of *R. anachoreta* at relatively low elevations in rainforest is unusual in comparison with other members of the *godmani* group, which inhabit pine-oak or cloud forest at intermediate to high elevations.

The holotype was found during the morning under a rotten log in secondary vegetation, the paratypes were found underground in secondary vegetation (during the construction of a road with a bulldozer). The female was encountered microsympatrically with the caecilian, *Gymnopsis syntrema*.

Remarks.—This is a diminutive species of the *godmani* group (sensu Myers, 1974). Campbell (1982) provided a phylogeny for this group, within which *Rhadinaea anachoreta* falls out as the sister species of *R. hannsteini*. *Rhadinaea anachoreta* and *R. hannsteini* are separated by the Continental Divide of the Nuclear Central American highlands—*R. anachoreta* being restricted to the mountain slopes of the Atlantic versant and *R. hannsteini* occurring only on the Pacific slopes. Although *R. anachoreta* differs from *R. hannsteini* in a number of features (see diagnosis), these species are similar in having a single postocular, no subpreocular, one preocular, eight supralabials, eight infralabials, and the same number of body stripes. *Rhadinaea anachoreta* appears to be more distantly related to *R. kinkelini*, with which it shares a similar color pattern. Although *R. anachoreta* generally inhabits lower elevations than *R. kinkelini* these species may be sympatric at intermediate elevations.

Our surveys of eastern Guatemala have yielded a single specimen of *Rhadinaea montecristi* (UTA R-35918). This is the first report of the

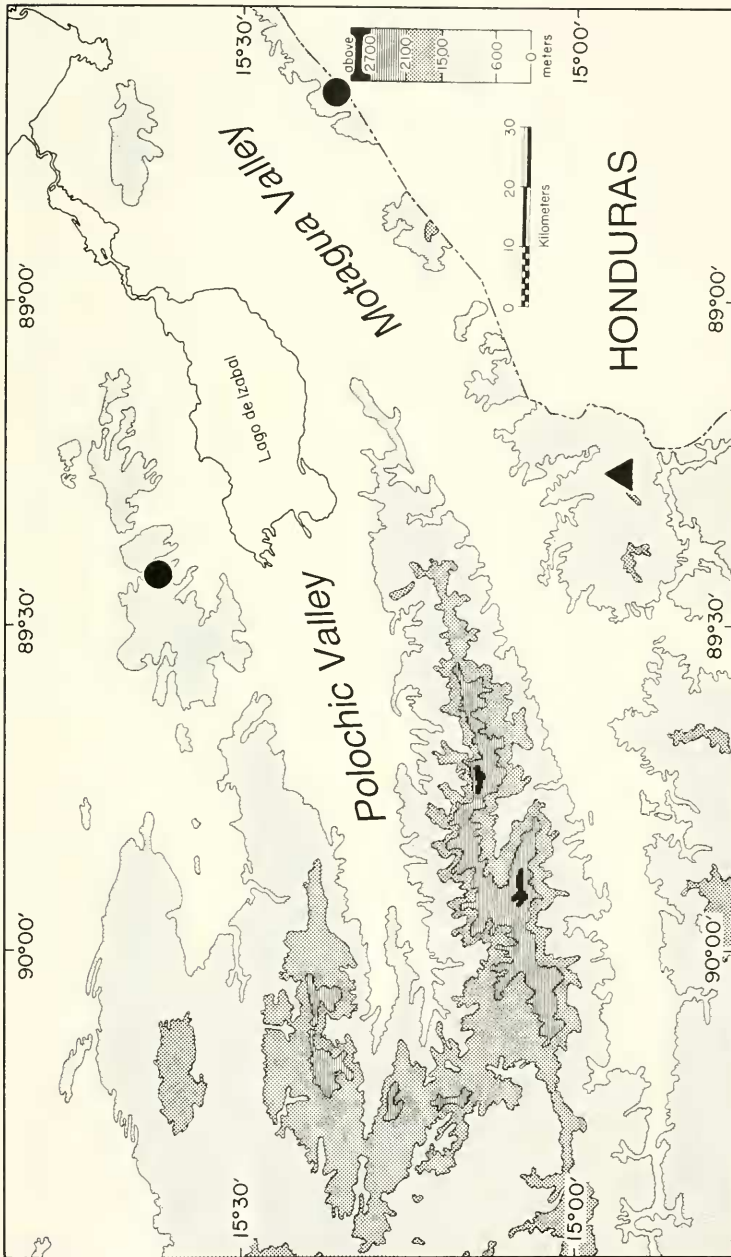


Fig. 3. Distribution of *Rhadinaea anachoreta* (●) and *Rhadinaea montecristi* (▲) in eastern Guatemala.

species in Guatemala, although it was mentioned by Campbell and Vannini (1989) as expected to occur in Guatemala in the Trifinio region, Cerro Montecristo, near the El Salvador, Guatemala, and Honduras border. The snake was found crawling on the ground by day, in a coffee grove of Finca El Chorro, located on the southern slope of Cerro del Mono, Sierra del Merendón, near La Unión, Departamento de Zacapa, Guatemala, ca. 1480 m, on 7 June 1993 (Fig. 3). The finca is located on the edge of cloud forest. This snake was maintained in captivity for more than a month and fed readily on adult *Bolitoglossa rufescens*.

No major differences of color pattern and hemipenial characteristics were found between our specimen and the description of *R. montecristi* provided by Myers (1974) and McCranie and Wilson (1991b). It is an adult male with a total length of 392 mm, a tail length of 118 mm (30% of total), a single preocular, no subpreocular, two postoculars, 8/8 supralabials, and 8/8 infralabials, 1 + 2 temporals, 160 ventrals, 19 smooth unreduced dorsal scale rows, no apparent apical pits, anal divided, and 66 subcaudals.

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